

October 10, 2017
 FOR IMMEDIATE RELEASE
 David Dugan
 OSU Extension Educator, Agriculture and Natural Resources
 Adams/Brown/Highland Counties
 Ohio Valley Extension Education Research Area

Livestock Producers Beware

Is it just me or does it seem like there is not enough time to get everything done? For livestock producers this can be scary this time of the year. As the first frost approaches there are dangers with some forages that cause a need to manage grazing much closer than normal, and of course with the recent dry weather there are other forage concerns with nitrates. Oh, and while we are in the mode of being concerned, dry weather has also caused some very short grazing in some areas. Do you have all of the calves vaccinated? Blackleg can show up quickly and one shot is not enough, a booster is needed and even then it is not 100% protection. I am not done either.

From the forage side of things, Dr. Mark Sulc, OSU Extension Forage Specialist breaks down the situation and concerns for the next few weeks. This was in this week's CORN newsletter.

As cold weather approaches, livestock owners who feed forages need to keep in mind certain dangers of feeding forages after frost events. Several forage species can be extremely toxic soon after a frost because they contain compounds called cyanogenic glucosides that are converted quickly to prussic acid (i.e. hydrogen cyanide) in freeze-damaged plant tissues. Some legumes species have an increased risk of causing bloat when grazed after a frost. In this article I discuss each of these risks and precautions we can take to avoid them.

Species with prussic acid poisoning potential

Agronomic species that can contain prussic acid are listed below in decreasing order of potential risk of toxicity after a frost event:

- Grain sorghum = high to very high toxic potential
- Indiangrass = high toxic potential
- Sorghum-sudangrass hybrids and forage sorghums = intermediate to high potential
- Sudangrass hybrids = intermediate potential
- Sudangrass varieties = low to intermediate in cyanide poisoning potential
- Piper sudangrass = low prussic acid poisoning potential
- Pearl millet and foxtail millet = rarely cause toxicity

Species not usually planted for agronomic use can also develop toxic levels of prussic acid, including the following:

- Johnsongrass
- Shattercane
- Chokecherry
- Black cherry
- Elderberry

It is always a good idea to check areas where wild cherry trees grow after a storm and pick up and discard any fallen limbs to prevent animals from grazing on the leaves and twigs.

Plants growing under high nitrogen levels or in soils deficient in phosphorus or potassium will be more



likely to have high prussic acid poisoning potential. After frost damage, cyanide levels will likely be higher in fresh forage as compared with silage or hay. This is because cyanide is a gas and dissipates as the forage is wilted and dried for making silage or dry hay.

Young, rapidly growing plants of species that contain cyanogenic glucosides will have the highest levels of prussic acid. After a frost, cyanide is more concentrated in young leaves and tillers than in older leaves or stems. New growth of sorghum species following a non-killing frost is dangerously high in cyanide. Pure stands of indiangrass can have lethal levels of cyanide if they are grazed when the plants are less than 8 inches tall.

Toxicity Symptoms

Animals can die within minutes if they consume forage with high concentrations of prussic acid. Prussic acid interferes with oxygen transfer in the blood stream of the animal, causing it to die of asphyxiation. Before death, symptoms include excess salivation, difficult breathing, staggering, convulsions, and collapse.

Ruminants are more susceptible to prussic acid poisoning than horses or swine because cud chewing and rumen bacteria help release the cyanide from plant tissue.

Grazing Precautions

The following guidelines will help you avoid danger to your livestock this fall when feeding species with prussic acid poisoning potential:

- Do not graze on nights when frost is likely. High levels of toxic compounds are produced within hours after a frost, even if it was a light frost.
- Do not graze after a killing frost until plants are dry, which usually takes 5 to 7 days.
- After a non-killing frost, do not allow animals to graze for two weeks because the plants usually contain high concentrations of toxic compounds.
- New growth may appear at the base of the plant after a non-killing frost. If this occurs, wait for a killing freeze, then wait another 10 to 14 days before grazing the new growth.
- Don't allow hungry or stressed animals to graze young growth of species with prussic acid potential. To reduce the risk, feed ground cereal grains to animals before turning them out to graze.
- Use heavy stocking rates (4-6 head of cattle/acre) and rotational grazing to reduce the risk of animals selectively grazing leaves that can contain high levels of prussic acid.
- Never graze immature growth or short regrowth following a harvest or grazing (at any time of the year). Graze or greenchop sudangrass only after it is 15 to 18 inches tall. Sorghum-sudangrass should be 24 to 30 inches tall before grazing.
- Do not graze wilted plants or plants with young tillers.

Greenchop

Green-chopping frost-damaged plants will lower the risk compared with grazing directly, because animals are less likely to selectively graze damaged tissue. Stems in the forage dilute the high prussic acid content that can occur in leaves. However, the forage can still be toxic, so feed greenchop with great caution after a frost. Always feed greenchopped forage of species containing cyanogenic glucosides within a few hours, and don't leave greenchopped forage in wagons or feedbunks overnight.

Hay and silage are safer

Prussic acid content in the plant decreases dramatically during the hay drying process and the forage should be safe once baled as dry hay. The forage can be mowed anytime after a frost if you are making hay. It is very rare for dry hay to contain toxic levels of prussic acid. However, if the hay was not properly cured and dried before baling, it should be tested for prussic acid content before feeding to livestock.

Forage with prussic acid potential that is stored as silage is generally safe to feed. To be extra cautious, wait 5 to 7 days after a frost before chopping for silage. If the plants appear to be drying down quickly after a killing frost, it is safe to ensile sooner.

Delay feeding silage for 8 weeks after ensiling. If the forage likely contained high levels of cyanide at the time of chopping, hazardous levels of cyanide might remain and the silage should be analyzed before feeding.

Freezing also slows down metabolism in all plants that might result in nitrate accumulation in plants that are still growing, especially grasses like oats and other small grains, millet, and sudangrass. This build-up usually isn't hazardous to grazing animals, but green chop or hay cut right after a freeze can be more dangerous. When in doubt, send a forage sample to a forage testing lab for nitrate testing before grazing or feeding it.

Species That Can Cause Bloat

Forage legumes such as alfalfa and clovers have an increased risk of bloat when grazed one or two days after a hard frost. The bloat risk is highest when grazing pure legume stands, and least when grazing stands having mostly grass.

The safest management is to wait a few days after a killing frost before grazing pure legume stands – wait until the forage begins to dry from the frost damage. It is also a good idea to make sure animals have some dry hay before being introduced to lush fall pastures that contain significant amounts of legumes. You can also swath your legume-rich pasture ahead of grazing and let animals graze dry hay in the swath. Bloat protectants like poloxalene can be fed as blocks or mixed with grain. While this an expensive supplement, it does work well when animals eat a uniform amount each day.

Dates to Remember

- | | |
|---------|---|
| Oct. 14 | Tire Amnesty Day in Adams Co. |
| Oct. 16 | Pesticide Testing at Old Y at noon. Third Monday this month due to Columbus Day falling on the second Monday. |
| Oct. 23 | Highland Co. Dairy Service Unit Banquet. |